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May 19, 2003

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RE: Draft Response to Comments
Richardson Flat Bio SAP

Mr. Christiansen,

The purpose of this letter is to provide the USEPA and USFWS with a synopsis of the changes made to the March 14, 2003, Richardson Flat BioSAP. Changes to the report are summarized below:

1. Page 1, 4th paragraph, last sentence. EPA Region VIII's policy is to not allow potentially responsible parties to conduct risk assessments. Please revise this sentence to state that "If United Park does not carry out the remedial activities, then United Park will work with EPA to collect data to satisfy the data gaps identified in the SERA and EPA will conduct an ecological risk assessment."

   Sentence revised as requested.

2. Page 2, last paragraph. The text states "Furthermore, sediment quality parameters such as grain size distribution, pH, moisture, total organic carbon, and nutrients will be quantified to develop predictive relationships between bulk sediment concentrations and bioavailable metals (Suave et al. 1998)." Suave did not develop these relationships in sediments, but rather is dry soils. Whether or not these relationships would hold in sediments is highly uncertain. Also, Suave focused primarily on pH and TOC and not the other parameters discussed in the text. It is unclear how these would be used. Finally, much of Suave's work focused on determining the bioaccessible ionic activity of the metals using ionic probes. It is unclear how the SAP is going to quantify dissolved ionic metal activity.

   We have removed the reference and will be using data as described in Section 3.1

3. Page 3, 1st full paragraph, 2nd sentence. Please revise this sentence to indicate the SERA is "conservative in nature" as opposed to stating it "overestimated risk." The current phrasing implies it was done incorrectly, which is not the case. The point of follow up data collection is to objectively determine the validity of the risk estimates.

   Sentence revised as requested.

4. Page 4, Last full paragraph. As we discussed on the phone, EPA and USFWS believe more characterization is required for the seep. While the amount of water coming from the seep is small relative to the diversion ditch, it may have some impacts to the wetlands area. Past conditions may also have been different. Rather than focus on the impacts to overall water quality resulting from contributions from the seep, we suggest we focus on the area downgradient of the seep to determine if the soils and sediments are impacted from current or past flows.

   The document has been revised to include nature and extent sampling in Phase I and biological sampling in Phase II. Approximately 17 sediment samples will collected in Phase I, the analytical data in Phase I will be used to better define a scope of work for Phase II sampling. United Park proposes that only one organism (Hyalella) sediment toxicity test be conducted at locations determined from the Phase I sampling. Using two test organisms may increase the general understanding of sediment toxicity in this and related environmental settings. However, we do not understand the cost benefit for this project, the proposed species test will give us information on survival, growth and reproduction.

5. Page 6, Section 2.3, 2nd paragraph, last sentence. The E&E report indicated that many metals were elevated in the sediment, including cadmium, mercury, selenium, and silver. Please revise this sentence to reflect this.

   Revised as requested.

6. Page 9, Table 3.0, 1st row. The first row in the table specifies that dissolved metal concentrations will be used to characterize risk. Total metal concentrations must be used to estimate dose to wildlife ingesting water.

   Table revised, total metal analysis has been included.

7. Page 11, Section 3.2. The SERA identified the potential contaminants of concern. These are the metals that should be quantified for the Baseline Ecological Risk Assessment (BERA) and analyzed during this data collection effort.

   The SAP analyte list has been modified to address COPC's for media of interest. Section 3.2 and Table 4.1 have been modified.

8. Page 11, Section 3.3. As we discussed on the phone, sampling only the flowing channels in the wetland areas may be an insufficient number of sample points to characterize the extent of contamination. EPA and USFWS are also concerned that potential for historic contamination outside the channels is not addressed with the proposed approach. While the number of samples in the flowing channels is likely sufficient, we suggest superimposing a grid over the entire wetland area (generally bounded by Silver Creek and Highway 248). As we discussed on the phone, only metal concentrations would be required from the grid samples, and they could be used to (1) clearly define the area of concern, and (2) establish a concentration gradient for which a few sample locations could be chosen for additional biological sampling. This approach will likely decrease the number of biological samples required, while increasing the likelihood that a dose-response relationship could be derived from the data. Use of a site specific concentration gradient would eliminate the need for finding and choosing an appropriate reference site. The size of the grids is flexible, and somewhat depends on the sampling approach. For instance, if XRF is used, more grids could be analyzed and an iterative approach could be considered, using wet chemistry only in areas where the detection limit of the XRF is insufficient, or more detailed data in needed (e.g. smaller grids in areas of expected contamination, larger grids in areas not expected to be contaminated). Composite sampling could change your approach. For baseline size considerations, 150 foot square grids is probably a good minimum, though more would obviously be better. This would result in approximately 15 additional samples in the wetland area. Similarly, we suggest at least 3 samples in the pond, so there is some measure of statistical soundness to the data should it need to be compared to reference areas.

   This section and entire document have been revised to reflect the nature of this comment. The grid system suggested for nature and extent sampling has been adopted in order to perform the nature and extent sampling (See, revised Figure 3.0).

9. Page 12. top of the page. ".....concurrence from EPA and USFWS representatives." We also need the concurrence of UDEQ.

   Revised as requested.

10. Page 15, Section 4.5.2.1. While we are not opposed to using AVS/SEM, EPA and USFWS do not see the utility in sampling both AVS/SEM and porewater. Our understanding based on past conversations was that we agreed to sample porewater for dissolved metals in both the field and the lab (using a split of the sediment samples used for toxicity testing). This is still our preference, but if AVS/SEM is used, an SOP or other detail regarding the technique should be included in the SAP.

    AVS/SEM will not be used. However, we do not understand why redundant porewater samples are required. We would appreciate any insight EPA can provide on this issue.

11. Page 18, 2nd paragraph. The buds, leaves, and fruiting structures of the woody shrubs should be sampled because this is the part of the plant that is preferentially browsed by herbivores.

The buds, leaves and fruiting structures of the woody shrubs will be included in the plant tissue sample. The text has been revised to reflect this comment.

12. Page 25, Step 1. An additional consideration is that the nature and extent of contamination in the wetland is not defined. If no unacceptable risk is found, this is less important, but if there is excessive risk, or cleanup is assumed, then defining nature and extent is important and should be a consideration in the SAP.

Revised as requested.

13. Page 26, Step 5. This step may have to be rewritten to reflect the changes we've discussed here and in our phone call. And again, particularly important in the changes is the prospect of using a grid to define a concentration gradient and using that information to develop a dose-response relationship. The current approach may not provide sufficient information to develop a dose response relationship. Also, if reference areas are used, please explain how you will make a comparison between site data and reference data to determine an acceptable level of metals.

Step 5 has been revised to include decision points based on the Phase I sample data, use of reference area data is explained in this step.

If you have any questions, or if you require any further information, please feel free to give me a call at 801-255-2626.

Sincerely,

Jim Fricke
RMC

cc: Kerry Gee
Christine Cline
Dale Hoff,
Mohammed Slam
Dan Wall
Exponent